



**CAMOSUN COLLEGE**  
**School of Arts & Science**  
**Department of Mathematics & Statistics**

**MATH-109-D04**  
**Finite Mathematics**  
**Fall 2020**

**COURSE OUTLINE**

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The course description is online @ <http://camosun.ca/learn/calendar/current/web/math.html>

Ω Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.

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**1. Instructor Information**

<b>(a) Instructor</b>	Chedo Barone
<b>(b) Office hours</b>	Tues - Fri (2:30PM - 3:30PM), or by appointment. Held on Blackboard Collaborate; link is posted on D2L
<b>(c) Location</b>	Online
<b>(d) Phone</b>	<b>Alternative:</b>
<b>(e) E-mail</b>	baronec@camosun.ca
<b>(f) Website</b>	D2L (login at online.camosun.ca)

**2. Intended Learning Outcomes**

*(If any changes are made to this part, then the Approved Course Description must also be changed and sent through the approval process.)*

Upon completion of this course the student will be able to:

1. Solve counting problems using sets and/or the multiplication principle, and recognize and solve problems involving permutations and combinations.
2. Apply the basic properties and concepts of probability to solve problems from fields such as medicine and quality control. Determine the probability distributions for random variables and calculate expected values. Where appropriate, evaluate probabilities using the binomial distribution. Explore systems evolving from one state to another using Markov chains.
3. Solve linear systems of equations using techniques, including Gauss-Jordan elimination and inverse matrices.
4. Solve linear programming problems using a graphical approach.
5. Derive simple annuity formulas and use them to solve amortization problems.
6. Translate statements into symbolic form and vice versa. Construct truth tables for propositions, including implications. Use truth tables to verify equivalencies.

**3. Required Materials**

(a) Texts

Math 109 Course Notes. Available on D2L

(b) Other

Calculator. The Sharp-EL 531 is the model I will be using and demonstrating. An “online” version is available for download at <http://www.sharp-calculators.com/en/content/id/121-learning-materials>

## **4. Course Content and Schedule**

### **1 – Lines**

- 1.1 Linear Equations and Straight Lines
- 1.2 Linear Inequalities
- 1.3 Points of Intersection of Lines
- 1.4 Slope of a Straight Line

### **2- Linear Programming**

- 2.1 Linear Programming Problems
- 2.2 Finding Feasible Sets
- 2.3 Solving Linear Programming Problems

### **3- Sets and Counting**

- 3.1 Sets
- 3.2 Principle of Inclusion-Exclusion
- 3.3 Venn Diagrams
- 3.4 The Multiplication Principle
- 3.5 Permutations and Combinations
- 3.6 More Counting Techniques

### **4 – Probability**

- 4.1 Experiments and Outcomes
- 4.2 Basic Probability
- 4.3 Calculating Probabilities
- 4.4 Conditional Probability and Independence
- 4.5 Tree Diagrams
- 4.6 Bayes' Theorem

### **5 – Random Variables**

- 5.1 Introduction to Random Variables
- 5.2 Binomial Random Variables

### **6 – Matrices**

- 6.1 Systems of Linear Equations
- 6.2 General Systems of Linear Equations
- 6.3 Matrix Arithmetic
- 6.4 Matrix Inverses
- 6.5 Using Gauss-Jordan Elimination to Find Matrix Inverses

### **7 – Markov Chains**

- 7.1 Introduction to Markov Chains
- 7.2 Regular Markov Chains

### **8 – Financial Mathematics**

- 8.1 Simple Interest
- 8.2 Compound Interest
- 8.3 Future Value of an Annuity
- 8.4 Present Value of an Annuity

### **9 – Logic**

- 9.1 Introduction to Logic
- 9.2 Building Truth Tables
- 9.3 Implications
- 9.4 Logical Equivalence

**Assignments:** See the Math 109 Schedule, posted on D2L for the due dates for the assignments. On the indicated day, the assignment is due to be submitted before 11:59PM.

**Late Assignments:** You may submit an assignment the day after the due date, for 80% of the value of the assignment, or two days after the due date for 60% of the value of the assignment. Assignments will not be accepted more than two days after the due date.

**For example, if the assignment is due on a Friday, then I will accept late submissions on Saturday and Sunday, but will not accept late submissions on Monday or later.**

## 5. Basis of Student Assessment (Weighting)

**Assignments:** Assignment 0 (worth 1%), and Assignments 1-8 (each worth 3%), for a total of 25%

**Tests:** 3 tests, each worth 15%, for a total of 45%

**Final Exam:** 30%

Please see the Math 109 Schedule, posted on D2L for the dates of the assignments and tests. The final exam date will fall during the Final Exam period (Dec 14-22)

## 6. Grading System

*(If any changes are made to this part, then the Approved Course description must also be changed and sent through the approval process.)*

*(Mark with "X" in box below to show appropriate approved grading system – see last page of this template.)*

Standard Grading System (GPA)

Competency Based Grading System

## 7. Recommended Materials to Assist Students to Succeed Throughout the Course

### Math Lab (Help Centre)

Math lab **E224** is staffed with instructional assistants available for **free** help. Please email [themathlabs@gmail.com](mailto:themathlabs@gmail.com) to arrange an appointment. Lab hours can be viewed at <http://camosun.ca/services/help-centres/>

## 8. College Supports, Services and Policies



### Immediate, Urgent, or Emergency Support

If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ <http://camosun.ca/about/mental-health/emergency.html> or <http://camosun.ca/services/sexual-violence/get-support.html#urgent>

### College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library,

and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at <http://camosun.ca/>

### College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at <http://camosun.ca/about/policies/>. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

#### A. **GRADING SYSTEMS** <http://camosun.ca/about/policies/index.html>

The following two grading systems are used at Camosun College:

##### 1. Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

##### 2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

### B. **Temporary Grades**

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at <http://camosun.ca/about/policies/index.html> for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress:</i> A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	<i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.